



US Army Corps  
of Engineers  
Waterways Experiment  
Station

# RECNOTES

Recreation  
Research  
Program

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## If we charge them, will they come?

by Jim E. Henderson, U.S. Army Engineer Waterways Experiment Station

The implementation of day-use fees at Corps of Engineers projects in 1994 represented a major change, one that evoked strong, widely varying opinions from nearly everyone involved.

Ideas on whether fees should be charged at all, what activities should be included, and the potential to address visitor management goals (such as control of congestion and

vandalism) differed among project managers, gate attendants, Congress, the Pentagon, and Corps headquarters personnel.

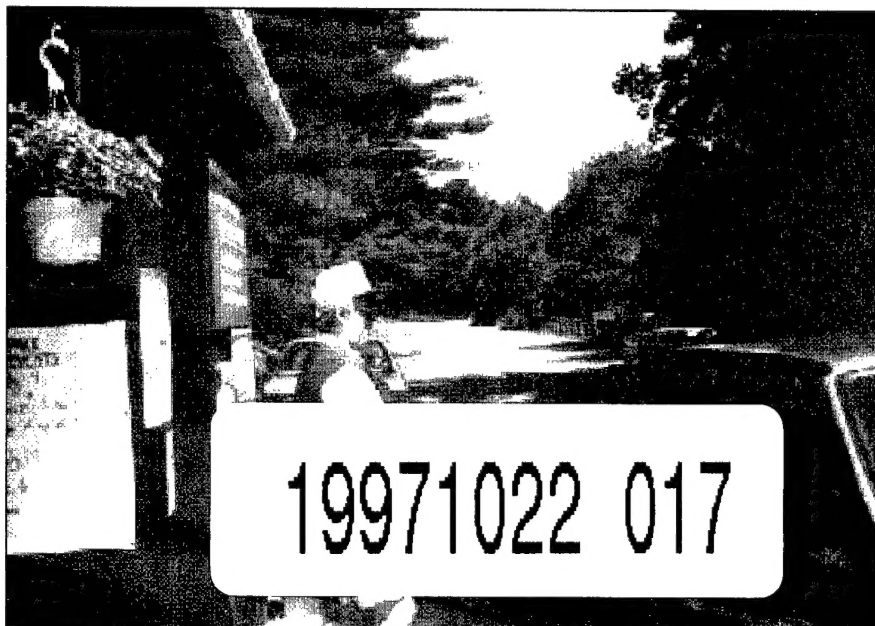
The Recreation Research Program's work unit "Evaluating the Effects of Recreation Fee Programs" is providing Corps recreation resource personnel with answers to some of the major questions concerning visitors' attitudes and behaviors

regarding fee implementation. This improved knowledge of fee issues enhances the effectiveness of managing the Corps' fee program.

In 1993, before implementation of day-use fees, the major questions were these:

- If fees are charged, will visitation drop, will people stop using the Corps projects, or will displacement to non-fee areas occur?
- Does the public support charging fees, and what is the level of support? Will level of support change over time?
- Will charging of fees discriminate against poor and minority visitors?
- What can Corps recreation projects do to improve visitor acceptance of fees? What factors affect visitor support of fees?

Using a pre-fee survey in 1993 and a post-fee survey in 1996 (after 2 years of day-use fees), the Corps now has answers to these questions, which are summarized in Technical Report R-97-1 (May 1997, U.S. Army Engineer Waterways Experiment Station).



Joan Meyrick, a retired contractor, collects user fees from a visitor to Buffumville Lake (New England Division)

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The pre-fee survey included six projects. In 1996, post-fee surveys were implemented at two of the six projects—Harry S. Truman Lake, Missouri, and J. Percy Priest Lake, Tennessee.

## Effects on visitation

In 1993, almost half of all visitors surveyed at Truman and Priest Lakes “agreed” or “strongly agreed” with this statement: *If the Corps charged a day-use fee, I would no longer visit their day-use areas.*

This response led to concerns that reactions to day-use fees would cause a 50-percent reduction in use. However, this simply did not occur at these projects or anywhere else. In fact, at a number of projects, visitation increased. The presence of gate attendants apparently improved the visitors’ perception of project safety and security.

At Truman Lake, the number of 1996 visits was 16 percent higher compared with 1993. At Priest Lake, visitation increased by 10 percent project-wide from 1993 to 1996.

Overall, based on visits to the recreation areas surveyed, visitation increased at all but one area (Cook, at Priest Lake).

Project/Area	Visits		
	1993	1996	Trend
Harry S. Truman			
Shawnee Bend	48,900	80,600	Increase
Long Shoal	112,400	126,700	Increase
J. Percy Priest			
Anderson Road	343,963	352,222	Increase
Cook	200,202	164,440	Decrease

As for the displacement issue (that is, whether charging of fees had caused displacement of visitors to off-project recreation sites), the 1996 survey results were considered adequate to eliminate this concern. Based on the high percentages of visitors in 1996 who had also visited prior to fee implementation, and on the average number of years visited, recreation researchers concluded that displacement had not occurred.

Survey Category	Truman	Priest
First-time visitors to project (%)	9	11
Years visited the project (no.)	10	7
Visited prior to fees (%)	82	67

Although it was not possible to interview the “displaced visitors” (those not at the areas surveyed), the researchers considered these data adequate to assume that little displacement could have been possible.

## Public support for fees

In 1993, priority needs were to find out how recreation project visitors felt about charging fees and to determine what level of public support for fees existed.

Slightly different question formats (different numeric scales) were used in the pre- and post-fee surveys (see table below). In 1993, visitors to both Truman and Priest expressed strong opposition to implementing fees. In 1996 visitor opposition had turned to support at Priest, and at Truman, mean value of support was at the neutral point. After 2 years of the fee program, opposition at both projects had moved toward support. At Priest, mean support level was at 7.7 on a 10-point scale, a modest level of support. At Truman, survey results revealed a mean rating of 5.5, near the neutral point.

Survey questions: Public support of fees	Truman	Priest
<b>1993 results</b> (1 = Strongly disagree; 5 = Strongly agree)		
"I should not pay a fee to visit Corps of Engineers day-use areas."	4.2	4.0
"I am willing to pay a fair day-use fee when using Corps day-use areas."	2.3	2.6
<b>1996 results</b> (1 = Strongly oppose; 10 = Strongly support)		
"What is your level of support for the day-use fee program?"	5.5	7.7

In answer to the question, Does the level of acceptance or opposition change over time with the implementation of fees? the answer is “yes,” as evidenced at both Truman and Priest.

The answer to the question that naturally follows—Will the opposition change to support?—is “not necessarily.” The distribution of responses (Figure 1) shows that the 7.7 mean value at Priest resulted from a high proportion of respondents at the 10 level (strong support), substantial numbers at the 5-to-9 level, and a good number at the “Strongly oppose” (1) level. At Priest, opposition to fees has changed to moderate-to-strong support.

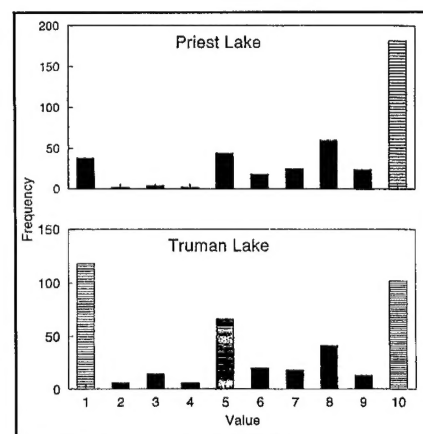


Figure 1. Response to question, Are there differences between projects in support of fees?

One might assume that the longer the fee program is in place, the more the remaining opposition will be reduced. However, the interpretation for further support at Truman is different. Approximately the same number of visitors strongly support as strongly oppose.

Of 404 respondents, 115 rated support at 9 (13 respondents) or 10 (102), and 124 rated support at 1 (118) or 2 (6). A sizable number rated support at the 5 (neutral) point.

At Truman, while there has been a change to more support, there continues to be an equal amount of strong opposition. In 1993 many visitors strongly opposed fees, and a high proportion still oppose and may likely always oppose fees and the fee program.

The degree of movement toward support that was observed at Priest did not occur at Truman. The interpretation is that there will always be sizable opposition to fees at Truman, which is unrelated to the number of years the fee program is in place.

## Effects on low-income and minority visitors

Answers to the question regarding impacts on low-income and minority visitors were inconclusive. At Truman, the average income increased by \$11,000, but years of education remained the same; the two measures usually vary together. At Priest, average income increased slightly. The percentage of minority (non-Caucasian) visitors decreased by 1 percent at Truman, but increased by 3 percent at Priest.

Survey question: Impact on low-income and minority visitors	1993	1996
<b>Truman</b>		
Income (mean, \$)	38,400	49,750
Percent minority (non-Caucasian)	4.0	3.0
Years education (mean no.)	13.3	13.3
<b>Priest</b>		
Income (mean, \$)	40,100	42,070
Percent minority (non-Caucasian)	8.2	11.2
Years education (mean no.)	13.5	13.2

## Other factors that affect support of fees

Assuming that once a project begins charging fees it is unlikely that it will stop, another question arises: Are there factors under the control of project operations that affect the visitors' perceptions and support for the fee program?

Visitors were asked to rate the quality or importance of a range of natural resource, management, and recreation experience factors. These "importance" ratings were used, along with responses to the "support for fees" question (discussed above) and the ratings of recreation quality,

to determine what factors were significant for support of the fee program.

Factor analysis and predictive models were developed to help researchers better understand the importance of individual and natural resource dimensions as they contribute to support for the fee program.

Five factors were identified from the perception and attitude questions as important to support of fees:

- Cleanliness and maintenance of the project,
- Crowding and behavior of other visitors,
- Availability of developed facilities,
- Project staff availability and performance,
- Natural resources at the project.

Quality of recreation experience was reported high at both projects in both the pre- and post-fee surveys. It is interesting that quality ratings at Truman Lake were higher than at Priest Lake in the pre-fee study, whereas the reverse was true in 1996. This may suggest that implementation of day-use fees has impacted visitor attitudes toward the quality of Corps recreation experience at Truman Lake. Also at Truman, satisfaction with the performance of project staff duties (for example, posting of regulations) was a significant predictor of support for the fee program.

Truman Lake recreation quality ratings were positively related to attachment or loyalty to the recreation area, the size of the recreating party, and whether visitors believed that fees provide or help support their desired recreation experiences.

Priest Lake recreation quality ratings were also positively associated with preferences for the recreation area, visitor beliefs about fees providing preferred recreation experiences, size of the recreation party, and project staff support.

## Conclusions

The 1994 implementation of the day-use fee program represented a major change in the way non-camping recreation is provided by the Corps of Engineers. The follow-up evaluation, conducted 2 years into the program, revealed several general effects.

Was visitation adversely affected?	No
Did displacement occur?	No
Does support for fees increase with time?	Yes
Are there differences between projects in support for fees?	Yes
Can we manage the factors affecting support for fees?	Yes

In addition to the findings presented above, several other questions or issues bear mentioning. The level of visitor approval for day-use fees varied with the method of fee collection. That is, where a gate attendant was taking money versus an "iron ranger," there was more support for the fee program, in addition to perceptions of higher quality recreation and greater security.

The necessary use of honor boxes has resulted in a phenomenon not anticipated in the responses to the 1993 survey—noncompliance. When visitors have the idea that enforcement is minimal to nonexistent, they may be likely to forgo putting their money in the iron ranger.

The interviewers who administered the surveys at Truman and Priest Lakes noted that, at times, non-compliance rates exceeded 40 percent (that is, no fee receipt was displayed). Obviously, this level of noncompliance could appreciably reduce revenues.

Also contributing heavily to this situation are the limited personnel and resources for enforcement and a restricted citation authority (for example, a \$50 fine for a \$2 fee).

A number of Corps projects have developed innovative solutions to the problems encountered in collecting

day-use fees. These ideas are summarized in *Natural Resources Technical Note REC-03*.

Implementing a consistent policy at Corps projects that display such

diversity of natural resources and visitor populations has been, and continues to be, a challenge. To the credit of those responsible at the projects—the managers, rangers, gate

attendants, and financial support personnel—the day-use fee program has been successfully implemented.

Publications of Recreation Research Program Work Unit "Evaluating the Effects of Recreation Fee Programs"		
Document Type/No.	Title (Authors)	NTIS No.
<b>Waterways Experiment Station Reports<sup>1</sup></b>		
MP R-92-3 (Aug 92)	Bibliography—Fees for Outdoor Recreation (C.M. White)	AD A255 072
TR R-93-1 (Aug 93)	Pilot Study Effects of Implementing Day-Use Fees at Corps of Engineers Projects (R. Rylander & C.M. White)	AD A269 937
MP R-94-1 (Jun 94)	Demand and Marketing Study at Army Corps of Engineers Day-Use Areas (S.D. Reiling, R.E. McCarville, C.M. White)	AD A281 577
TR R-97-1 (May 97)	Evaluation of Effects of Implementing Day-Use Fees at Corps of Engineers Projects (D.E. Calkin & J.E. Henderson)	AD A327 065
<b>Natural Resources Technical Notes<sup>2</sup></b>		
REC-03 (Feb 96)	Day-Use Fee Collection—Innovative Methods and Success Stories (J.E. Henderson)	N/A
<b>RecNotes<sup>2</sup></b>		
R-92-3 (Aug 92)	Legislative History of Outdoor Recreation Fees (C.M. White)	N/A
R-95-1 (Mar 95)	Promotional Event at Melvern Lake, Kansas (C. White & K. Wilk)	N/A
<sup>1</sup> Available on Interlibrary Loan Service from WES (U.S. Army Engineer Waterways Experiment Station) Research Library, (601) 634-2355. To purchase a copy, call the National Technical Information Service (NTIS) at (703) 487-4650 and make request by NTIS document number.		
<sup>2</sup> Available from Recreation Research Program. Direct any requests to the Program Manager, Russ Tillman, (601) 634-4201; Fax (601) 634-4838; E-Mail: tillmar@ex1.wes.army.mil.		



**About the author:**

As an environmental planner in the Environmental Laboratory, U.S. Army Engineer Waterways Experiment Station (WES), **Jim Henderson** has been involved in numerous studies to assess environmental programs. These projects include economic valuation of the Corps' aquatic plant control program, development of the Corps' Regional Recreation Demand Model, documenting environmental features for streambank protection projects, and developing procedures for visual impact assessment and for environmental planning and evaluation.

He holds a Bachelor's degree in Biology and a Master's degree in Environmental Planning, both from Texas Tech University.

**Jim E. Henderson**

U.S. Army Engineer Waterways Experiment Station  
ATTN: CEWES-EN-R  
3909 Halls Ferry Road  
Vicksburg, MS 39180-6199  
Phone: (601) 634-3305  
E-Mail: henderj@ex1.wes.army.mil

# Native American focus groups

by Robert Dunn

U.S. Army Engineer Waterways Experiment Station



*Ceremonial dancers at Caddo Tribal Center near Anadarko, Oklahoma*

Recreation resource planners monitor demographic trends as indicators of needed changes in services. One important trend that has been noted is the increasing percentage of ethnic minorities in the U.S. population. Predictions are that, by the year 2025, ethnic minorities will account for one third of the U.S. population, compared with one fifth in 1980.



*Focus group sessions, such as the one pictured, helped researchers gather information on the recreational habits and preferences of Native Americans*

Previously, the Corps has had no data on the recreational use, interests, or expectations of this growing number of U.S. citizens. To meet this need, the Recreation Research Program (RRP) developed the work unit "Ethnic Culture and Corps Recreation Participation."

One of the goals of this research, which is being conducted at the Waterways Experiment Station (WES), is to design a Corps recreational survey instrument that will be

effective in eliciting useful information from ethnic minorities.

Initially, research will focus on determining the current and future recreational preferences and needs of four groups—Native Americans, African Americans, Asian Americans, and Hispanics. This information will help managers make wiser decisions concerning improvements or rehabilitation of facilities and implement the most effective types of visitor information programs.

At the conclusion of the work unit, guidance will be developed to help project personnel improve their day-to-day interactions with ethnic group visitors and to increase participation by nonusers.

Plans were made in May 1997 to gather information on the recreational habits and preferences of Native Americans through a series of focus group sessions. The decision to use this method of information gathering, rather than administering face-to-face surveys, was based on the results of a literature review conducted as part of the RRP's Ethnic Culture work unit.

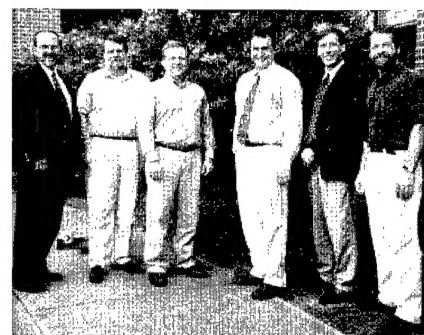
During June and July, six focus group sessions were conducted at sites in the Corps' Omaha and Tulsa districts, both of which experience high visitation by Native Americans. Dave Vader (the Omaha district's Tribal Coordinator), Dr. Frank Winchell (archeologist, Tulsa District), and Dr. Edwin Rossman (sociologist, Tulsa District) will coordinate the planning and invite

the session participants. Their expertise is critical to obtaining the information that is needed to successfully complete this work unit.

Consultant facilitators, Dr. Dale Brown and Dr. Tim Feather, helped ensure that focus group members participated freely. They also kept a written record of the sessions and prepared meeting summaries.

This summary information will be published in the *Natural Resources Technical Notes* and distributed to Corps recreation resource personnel by the RRP.

**For additional information, contact the principal investigator for the work unit, Robert Dunn, at (601) 634-2380 or e-mail [dunnr@ex1.wes.army.mil](mailto:dunnr@ex1.wes.army.mil).**



*Team members met in May to finalize plans for upcoming Native American focus group sessions. Participants included (left to right) Dale Brown, facilitator-consultant; Jim Henderson, WES; Bob Dunn, WES; Edwin Rossman, Tulsa District; Tim Feather, facilitator-consultant; and Dave Vader, Omaha District (not pictured: Frank Winchell, Tulsa District)*



# Workshop: Carrying Capacity for Lakes

by **John Titre, U.S. Army Engineer Waterways Experiment Station**  
**James Vogel, Clemson University**  
**Kenneth Chilman, Southern Illinois University**

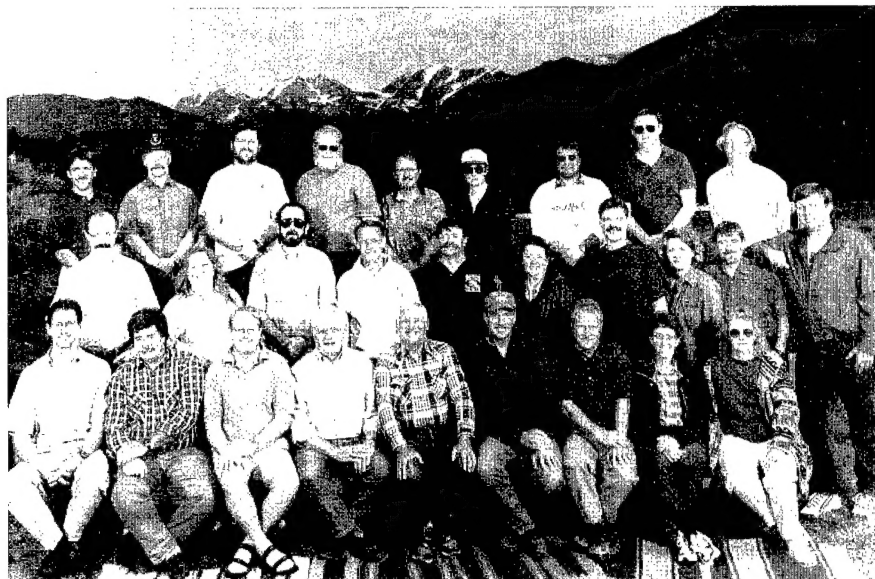
Lake managers across the country are confronted by new and increasing recreation use, along with the related development pressures on resources they manage. They have been searching for relatively low-cost means to obtain and process information on current use and public values of those resources and future recreation opportunities.

To meet this need, researchers at the U.S. Army Engineer Waterways Experiment Station (WES) have, over the past 5 years, developed procedures for conducting and applying the results of carrying capacity studies at lakes. These procedures have been successfully applied nationwide—at reservoirs managed by the Corps and at other reservoirs.

As with all new research, the final step is to expose and instruct potential users in the new technology. Toward that goal, a workshop was designed to introduce lake managers, planners, and related agency personnel to carrying capacity concepts and to the procedures developed at WES for the Corps' Recreation Research Program.

The workshop was held June 16-20 at the YMCA of the Rockies facility in scenic Estes Park, Colorado. Many of the 25 participants were planners and managers affiliated with the Bureau of Reclamation, representing regional and project offices across the western United States. Other attendees were from the U.S. Forest Service Tonto National Forest in New Mexico.

The majority of the workshop sessions were used to explain the



*Participants in "Carrying Capacity for Lakes" workshop, June 1997, Estes Park, Colorado*

Corps' carrying capacity approach and to apply the methodology by working through sample problems. The approach is based on a Recreation Management Information System (RMIS) that recognizes social inventory procedures as central to sound decisionmaking.

The RMIS procedure involves four to six tasks in each of the four steps:

- Step 1 - Study Design and Planning
- Step 2 - Data Collection
- Step 3 - Data Analysis and Reporting
- Step 4 - Discussion of Data and Application to Management

WES researchers emphasized that the problems associated with development and increased use are complex and evolving. Current data from

surveys and boat traffic observations, which describe conditions and values in specific areas of a lake, are crucial to solving these problems and preserving high-quality recreation opportunities.

At the conclusion of the workshop, participants indicated that they foresaw opportunities for applying the Corps procedures in order to develop a more credible and defensible position for influencing policy and management decisions.

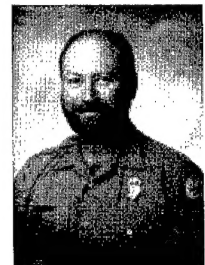
Barriers to conducting studies of this type were also recognized. However, continued contacts between the workshop instructors and participants may lead to applications at Bureau of Reclamation projects.

**For further information, contact John Titre at (601) 634-2199 or e-mail [titrej@ex1.wes.army.mil](mailto:titrej@ex1.wes.army.mil).**

# Recreation Resource Management News Briefs

★ **Cynthia S. Samples**, Park Ranger at Albeni Falls Dam (Seattle District), was selected by the Chief of Engineers as the 1997 recipient of the Hiram M. Chittenden Award for Interpretive Excellence. She was recognized at the Corps' Senior Leaders Conference on August 4, and will also be honored at the National Interpreters Workshop to be held in November in Beaumont, Texas. Ms. Samples was chosen for this award in recognition of her outstanding achievements in using interpretation to enhance public understanding of the Corps of Engineers, promoting positive experiences and attitudes, and encouraging voluntary stewardship of natural, cultural, and created resources.

★ **Alvin Lookofsky**, Park Ranger, Lake Shelbyville (St. Louis District), was named the winner of the American Recreation Coalition's 1997 Legend Award for the Corps of Engineers. Mr. Lookofsky was recognized for his outstanding efforts to enhance outdoor recreation experiences on Corps lands and waters. He accepted the award at a reception during Great Outdoors Week '97, observed June 9-13 in Washington, DC.



**Al Lookofsky,  
Ranger, Lake  
Shelbyville**

★ The *Natural Resources Technical Notes* are now available on-line at

<http://www.wes.army.mil/el/t2info.html>

Check the "What's New" listing on the WES Environmental Laboratory's homepage for further information.

★ The Natural Resources and Recreation Team at the Waterways Experiment Station recently welcomed **Dr. Dave Tazik** as the new chief of the Natural Resources Division. Dr. Tazik replaces **Dr. Bob Engler**, WES senior scientist and director of the WES Center for Contaminated Sediments.



# RECNOOTES

Recreation Research Program

This bulletin is published in accordance with AR 25-30. It has been prepared and distributed as one of the information dissemination functions of the Environmental Laboratory of the Waterways Experiment Station. It is primarily intended to be a forum whereby information pertaining to and resulting from the Corps of Engineers' nationwide Recreation Research Program can be rapidly and widely disseminated to Headquarters, and Division, District, and project offices, as well as to other Federal agencies concerned with outdoor recreation. Local reproduction is authorized to satisfy additional requirements. Contributions of notes, news, reviews, or any other types of information are solicited from all sources and will be considered for publication so long as they are relevant to the theme of the Recreation Research Program, i.e., to improve the effectiveness and efficiency of the Corps in managing the natural resources while providing recreation opportunities at its water resources development projects. This bulletin will be issued on an irregular basis as dictated by the quantity and importance of information to be disseminated. The contents of this bulletin are not to be used for advertising, publication, or promotional purposes. Citation of trade names does not constitute an official endorsement or approval of the use of such commercial products. Communications are welcomed and should be addressed to the Environmental Laboratory, ATTN: R. K. Tillman, U.S. Army Engineer Waterways Experiment Station (CEWES-EV), 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, or call AC (601) 634-4201.

ROBERT W. WHALIN, PhD, PE  
Director



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# HQUSACE Natural Resources Management Perspective

## Report It!

As many of you know, we've been conducting a number of follow-on activities as part of the Visitor/Ranger Safety Review initiative. From the beginning of this initiative, we've known that the reporting system was flawed. This became more apparent as we evaluated the need for equipment such as body armor and pepper spray.

We've been working with two sets of data. One was the formally reported assaults that result in Title 18 actions; the other set comprised the results of the Corps-wide survey of Corps Park Rangers and Park Managers.

The two data sets told different stories. On the officially reported side, it appears that Rangers and Park Managers have experienced less than 20 assaults in the past 14 years (since Title 18 protection was authorized). However, when we analyze the survey data, it appears that assaults to Rangers and Park Managers are occurring at a rate somewhere between 30 and 50 per year!

How can such a disparity exist in a Federal bureaucracy? Do we have that many people who decide "it's not worth the paperwork"? Do we have that many managers who suppress the reports? Are reports getting lost in the system?

While not all decisions have been made, it's clear to me that the supporting data are insufficient to make the case for significant changes in Ranger equipment. Official data *will* be the basis for decisions.

So, what are we doing about the situation? One of the recommendations of the original Visitor and Ranger Safety Review deals with the need to improve the incident reporting process. Three program offices—the Safety, the Law Enforcement and Security, and the Natural Resources Management programs—all have requirements to report incidents involving a variety of acts, including assault on a Ranger or Park Manager.

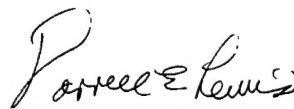
What is even more disturbing is that the task force found that none of the systems is generating quality data. Over the years, I've found my best source to be the Natural Resources Management network. News of a serious incident, even the recent one involving one of our family working in an activity entirely separate from Natural Resources Management, spreads throughout the NRM community like wildfire. However, formal reports are sporadic at best, and woefully slow in working their way through the organization.

A task force has recommended a one-entry system that will serve all three programs. We are creating an implementation team to develop a system that delivers accurate information to all three programs at all levels in a timely fashion.

As we implement the recommendations of the task force, some of the problems with incident reporting will be solved. However, we need the help of everyone on the front lines. If an incident occurs, **REPORT IT!** It's as simple as that.

An incident doesn't reflect on performance of the individuals involved. But incidents happen. The command chain needs to know about each incident to ensure the continued safety of the Ranger, the Park Manager, and the Visitor.

Each of us has the responsibility to make sure that the system works. If we don't buckle down and provide accurate incident information, we can't expect to get responsive policy decisions.



DARRELL E. LEWIS

Chief, Natural Resources Management Branch  
HQUSACE